papers on the chemical and physical properties of fluorine and on many of its compounds, the careful and detailed nature of the investigations being characteristic of all his work.

It is unnecessary to describe further these researches, since the whole subject forms a chapter of their science well known to all chemists, and has, moreover, already been fully dealt with in NATURE (vol. xxxvii., p. 179; vol. xliv., p. 622). Attention should, however, be directed to the fact that in 1897, in conjunction with Sir James Dewar, fluorine was liquefied at the Royal Institution. The construction of an apparatus of copper in 1899, to replace the expensive platinum vessels previously employed, simplified the preparation of the element, and the discovery that dry fluorine exempt from vapours of hydrofluoric acid does not attack glass served in recent years to facilitate the investigation of its properties.

In 1891 Moissan was elected a member of the Academy of Sciences to fill the chair left vacant by the death of Cahours.

The main reason which impelled Moissan to pass from the study of fluorine to the high-temperature researches, which from 1892 onwards absorbed so much of his attention, seems to be closely connected with a desire, which he had long entertained, to solve the mystery of the origin of the diamond. The hope that the great activity of fluorine for other elements would help in the quest not being realised, he was led to a methodical study of the behaviour and transformation of the three allotropic modifications of carbon. This study, which is an excellent example of the logical application of experiment, resulted in the artificial production of diamond, and at the same time added greatly to our knowledge of the peculiar metamorphoses which characterise this element.

The examination of portions of the meteorite from the Cañon Diablo proved the presence of small diamonds, surrounded by thin ribbon-like strips of compressed carbon, hidden in the centre of a mass of iron, and gave him the clue to the solution of the problem. How he planned and successfully carried through the adaptation of this idea in the laboratory with the production of minute but unmistakable diamonds is well known to all. Although this work has been frequently challenged, he had fully upheld the validity of the results, so recently as 1905, by repeating the experiments with still greater precautions, and by applying a more intimate knowledge of the compounds formed under similar conditions. It was for the purpose of augmenting the solubility of carbon in iron that he first required and adopted the electric furnace.

In electric furnace work, Moissan's preeminent position is due, not to the design or discovery of a special form of furnace, but rather to the skill with which he investigated in detail a number of individual chemical reactions. In each case he devoted great care to the purification and analysis of the raw materials required in the process, and submitted the products to minute examination and quantitatively determined their composition. Thus his preparation of chromium, tungsten, molybdenum, uranium, titanium and many other metals in a fused form and high degree of purity greatly enriched our knowledge of the chemical and physical properties of these elements.

Of still greater importance was the methodical following up of the chance formation of calcium carbide which he observed around the carbon electrodes in his early furnace experiments. From this observation he was led to discover and determine fully the nature and properties of a large number of metallic carbides, borides, and silicides, most of them hitherto absolutely unknown, or, like the metals mentioned already, only obtainable as impure and fragmentary specimens.

There is perhaps no need to consider, at the present time, in how far industry is directly indebted to Moissan's work. He himself had invariably expressed his desire not to be considered in such discussions, and, so far as the merit of his work is concerned, it needs no support of this nature. Indirectly, both science and industry have benefited enormously. On the Continent his scientific investigations are directly credited with a renaissance in the study of inorganic chemistry, which, particularly in Germany, had been almost entirely neglected for the more productive field of organic chemical research. Even in England, which has always held a high position in the pursuit of inorganic chemistry, his work has been of great assistance in instilling enthusiasm and encouraging the deeper study of the subject.

As a teacher, Moissan will be affectionately remembered by all his pupils; even during the tenure of his professorship of toxicology he maintained a research laboratory for chemistry, and attracted to it a number of students, and from the time of his appointment, in 1900, to the chair of inorganic chemistry at the Sorbonne larger numbers were able to avail themselves of his teaching.

As a lecturer, both in his public discourses and in the lectures on inorganic chemistry, which he gave during the last few years of his life, he was distinguished, even amongst French chemists, by the brilliant exposition of his subject and by his skill in experimental demonstration. R. S. HUTTON.

NOTES.

WE regret to see the announcement of the death of Mr. H. C. Russell, C.M.G., F.R.S., Government astronomer of New South Wales.

THE autumn meeting of the Iron and Steel Institute will be held in Vienna on September 23–25, and will be followed by excursions to Bohemia and to Styria.

THE Women's Agricultural and Horticultural International Union is organising an exhibition and sale of farm and garden produce, &c., to be held in the Gardens of the Royal Botanic Society, Regent's Park, N.W., on Wednesday, July 17.

THE Mercers' Company has made a grant of 1000*l.* to the Imperial Institute for scientific research in regard to the economic products of British colonies and protectorates, to be expended under the direction of the managing committee, subject to the control of the Secretary of State for the Colonies.

THE Friday evening discourse at the Royal Institution on March 8 will be delivered by Prof. David James Hamilton, on "Certain Seasonal Diseases in the Sheep and means of preventing them."

ENGLISH geologists who know anything of France and the French Alps will especially regret the death of M. Marcel Bertrand, which took place on February 13. His work on mountain-origins and mountain-structure had an important influence in the development of geological thought. Bertrand succeeded Pasteur as a member of the French Academy of Sciences in 1896.

WE learn from the *Times* that the Royal Academy of Sciences at Stockholm is petitioning the Swedish Government to request the British Government to grant permission for the removal of the remains of Emanuel Swedenborg from the Swedish Church, Princes Square, Ratcliff Highway, to Stockholm in order that they may be re-interred there by the side of the remains of the celebrated chemist, Berzelius.

In the House of Commons on Tuesday, the Secretary of State for War was asked " whether he was aware that the Army Medical Department and the entire medical profession in this country were mainly dependent on foreign manufacturers for the supply of tubes for X-ray examinations." In reply Mr. Haldane said :—" The X-ray tubes required for military hospitals are purchased from contractors in this country who obtain many of their supplies from Continental manufacturers. The few glass-blowers in this country who make X-ray tubes are unable at the present time to produce tubes in sufficient number to meet the demand or to equal in quality and price those manufactured abroad."

The Royal Academy of Sciences of Turin has announced the conditions under which the Vallauri prizes will be awarded. One prize of 28,000 francs is offered to the Italian or foreign man of science who, between January 1, 1907, and December 31, 1910, publishes the most important work in the domain of the physical sciences, using the expression in the widest sense.

Dr. H. M. Birdwood, whose death on February 21 has been received with regret, followed the example of his brother, Sir George Birdwood, by using his botanical and horticultural interests for the public benefit while officially connected with India. He was the author of a " Catalogue of the Flora of Matheran and Mahableshwar," two of the Bombay hill stations, and was a syndic of the Bombay University.

An article in the *Times* of February 22 urges that the Explosives Research Committee is culpably responsible for the violent explosion at Woolwich a few weeks ago. The explosion totally annihilated the magazine in which it occurred, wrecked a large number of houses in the vicinity, caused minor damages over a wide area, and produced a shock which was felt thirty miles away. It is said that the research laboratory was improperly used for storing large quantities of dangerous compounds which ought not to have been near a place where experiments with explosives of unknown properties are carried on. A letter signed " Scrutator " in the *Times* of February 12 states that the laboratory contained shells filled with condensed phosphuretted hydrogen and a gasometer full of this gas; and the article on February 22 asks, " what has become of the two kilograms of iodide of nitrogen, the existence of which is common knowledge? " The suggestion that the explosion was due to recklessness and negligence in the research department at Woolwich is damaging to scientific interests, and it is to be hoped that the research board will afford the information required without delay.

The council of the Society of Arts is prepared to award, under the terms of the Benjamin Shaw trust, a gold medal, or a prize of 20*l.*, " for any discovery, invention, or newly-devised method for obviating or materially diminishing any risk to life, limb, or health, incidental to any industrial occupation, and not previously capable of being so obviated or diminished by any known and practically available means." Intending competitors should send in descriptions of their inventions not later than December 31, 1907, to the secretary of the Society of Arts, Adelphi, London, W.C.

Another of the great teachers who have made Germany famous as a centre of geographical studies has passed away in the person of Dr. Alfred Kirchhoff, who died at Leipzig on February 8 at the age of sixty-nine. Only two years ago Kirchhoff was compelled by failing eyesight, amid universal regret, to resign the professorship of geography at Halle University, where his fruitful and stimulating labours extended over more than thirty years. He wrote various educational works, and only last year supplied, in association with Dr. S. Günther, a valuable treatise on geographical education to Baumeister's " Handbuch der Erziehungs- und Unterrichtslehre für höhere Schulen." His bent lay naturally in the direction of regional geography, which gave full scope to the many-sided character of his knowledge, and perhaps one of his greatest services was as editor (among other important works) of the series entitled " Forschungen zur deutschen Landes- und Volkskunde," which has now reached its sixteenth volume. Some of his studies on the relations between man and his environment attracted wide attention, and were published in a collected volume, which only last year was made available to English readers in Routledge's " Universal Library."

The Association of Italian Manufacturers has issued particulars of an international competition for prizes to be awarded for the prevention of accidents in factories. Applications must be made before June 30, 1908, to the association, 61 Foro Bonaparte, Milan. The nature and value of the prizes offered are as follow :—(1) A gold medal and 8000 lire (320*l.*) for a system to eliminate the danger of a contact (of whatever resistance) between the primary and secondary circuit of alternate-current transformers and their respective lines. (2) A gold medal and 1000 lire for a hand-crane or winch so constructed that without sensibly reducing the efficiency or speed of lowering, as compared to ordinary types, any danger due to the rotation of the handles by the descending load is avoided. Means must be provided to prevent the rotation of the handles during the descent of the load. With each system competing for the prize an apparatus must be supplied which will enable it to be submitted to practical tests.

English geologists lament the death, on February 15, of a well-known amateur, Miss Caroline Birley. Miss Birley was born in Manchester in 1851, and became interested in geological studies at an early age. She travelled extensively in search of fossils and minerals, and made a large collection, which was placed at the disposal of all to whom it could be of use for purposes of research. Her more important fossils were Cretaceous Invertebrata from Faxe, Denmark, Pliocene shells from Bordighera, and Pliocene shells in nodules from the Mekran coast, Baluchistan. Her collection of minerals included some fine zeolites obtained from the Færöe Islands. All the specimens desired by the British Museum are bequeathed to the nation, while the residue of the collection is given to the Manchester Museum. Though herself a diligent and accomplished student, Miss Birley rarely published any notes of her work; but an interesting account of the Chalk section at Faxe from her pen prefaces Dr. Henry Woodward's paper on Faxe fossils in the *Geological Magazine* for November, 1901. Miss Birley attended all the meetings of the British Association from 1887 onwards, and she was also an active member of the Geologists' Association. The president of the Geological Society and the keeper of geology in the British Museum were present among a large circle of friends at her funeral, which took place at Lingfield, Surrey.

A RECENT article distributed by the Decimal Association again directs attention to the advantages to a country of the introduction of the metric system of weights, measures, and coinage. Not the least of these advantages would be the saving of time to business men and workers of all kinds. To children at school the saving of time would be still greater, and this has been estimated with some exactness from figures provided by schoolmasters and others. The association states that the saving in educational time by the exclusive adoption of metric measures would be about 200 hours per child. If coinage also were decimalised, the saving would be increased to about 350 hours. That is, the association says, about 200 million hours a year for ever of school-children's time could be saved by a reform which, it is estimated, would cost adults on the average about the equivalent of a day's work (adding the needed mental exertion to the cost of new weights, metre-sticks, and gauges). The Decimal Association asks for legislation to bring about the improvement advocated; but in the meantime good work is being done, and an increasing amount of attention is paid to teaching children at school the simplicity of the inter-relation of the various metric measures. It is interesting in this connection to notice that one of the earliest Parliamentary Bills on the list this session is Mr. B. S. Straus's Weights and Measures (Metric System) Bill, which is receiving strong support. The Bill proposes that from April 1, 1910, all the present British weights and measures shall be replaced by those of the metric system, and that Parliament shall order the Imperial standards to be altered and issued officially as metric standards. The Bill will make it compulsory that every contract or sale shall be by the new standard kilogram and metre. In order to introduce the new system easily, the Bill arranges that local authorities shall provide local standards at least a year before the Act comes into operation. The metric system is one of the subjects to be discussed at the Colonial Conference to be held in London in April.

AN obituary notice of Colonel Mannheim is contributed by Dr. J. Reveille to the *Revue générale des Sciences* for January 30, and may be read with interest side by side with a similar notice of Lieut.-General De Tilly in the Brussels *Bulletin de la Classe des Sciences*, 1906, p. 10, by M. P. Mansion. Colonel Mannheim, who was professor in the École Polytechnique, devoted his attention, in the first place, to theories of transformation in geometry, and his work is noticeable for the prominence given to metric as opposed to projective methods. Under the title of "kinematical geometry," he developed a large and interesting field of study in connection with the displacements of bodies possessing two degrees of freedom. In this case the trajectory of any point of the system consists, not of a straight line, but of a surface, and the properties of these surfaces were studied by Mannheim up to the third order of infinitesimals. They lead to properties analogous to those relating to focal lines in optics, an application which Mannheim was not tardy in using, and his work also contains interesting applications to the properties of deformable surfaces, theories of contact of the third order, and other problems in infinitesimal geometry. Lieut.-General De Tilly, who for some time was professor, and later director, of the Belgian Military College, was author of a large number of works on geometry and mechanics. At the age of twenty-three he published his "Recherches sur les Éléments de Géométrie," and eight years later he published an essay on the mechanics of non-Euclidean space. He too seems to have been attracted by metric rather than projective geometry, for in his "Essai de Géométrie analytique générale" of 1892, he showed that all geometry ultimately reduced to a single relation between $n+2$ points for space of n dimensions. He also wrote papers on ballistics, and was an authority on educational matters.

OWING to inquiries regarding the cultivation of ramie in Jamaica, information on the subject, extracted from several sources, was reprinted in the December (1906) number of the Bulletin of the Department of Agriculture. Mention is also made of a new decorticating machine, manufactured in Germany by Bœken and Co., of Düren, that is portable and low priced.

IN the first number of this year's volume of the *Kew Bulletin*, Mr. T. A. Sprague discusses the synonymy of the Chilian genus Tricuspidaria, defining two species, and Mr. C. H. Wright furnishes a *clavis* for the identification of the Chinese species of Eriocaulon. Mr. G. Massee contributes an account of the heterœcious uredine fungus, *Calyptospora Goeppertiana*, that grows on species of Vaccinium and transfers to fir trees, constituting a pest more particularly of the silver fir, *Abies pectinata*. A note on ramie respecting the experience of an association for producing the fibre in Tirhut, Bengal, is useful as indicating that there are considerable difficulties in the matter of doing so at a remunerative cost. A list of plants suitable for gardens in the warmer parts of the United Kingdom is supplied in the miscellaneous notes.

AMONG the summaries of recent research contained in *Science Progress*, not any are more useful than those which collate allied facts obtained by workers in different sciences. Prof. J. R. Green contributes an article of this nature on protein hydrolysis to the current number (January), in which he indicates how Cohnheim discovered in animals an enzyme, or more correctly a group of enzymes that he called erepsin as distinguished from trypsin, while independently Vines had arrived at the conclusion that the so-called trypsin in plants is composed of two enzymes acting at different stages. As to the identity of the proteases in animals and plants, it can only be said that arguments tending in this direction may be adduced. Another botanical summary concerned with recent investigations on the fungi is written by Miss A. Lorrain-Smith, and a note on double fertilisation in plants is communicated by Miss E. N. Thomas.

THE growth in the North Andaman Island of the timber tree *Pterocarpus dalbergioides*, known as *padauk*, is the subject of an article in the *Indian Forester* (December, 1906) by Mr. F. H. Todd. The vegetative formations of the island consist of a belt of mangrove or littoral evergreen forest, above which the *padauk* forest rises to an elevation of 300 feet, when dense evergreen forest takes its place. It is probable that a sheltered aspect is the chief factor regulating the limits of the *padauk* zone. With regard to the rich red colour that characterises the most valuable timber, as it has been observed in trees of large girth and in dead or dying trees the author suggests that probably the colour deepens as the tree approaches maturity or decay. In the same number Sir Dietrich Brandis, referring to the identification of certain spruces growing in Sikkim, Chumbi, and Bhutan, remarks upon the anatomy of the leaves as a distinguishing feature, while leaving the determination to foresters on the spot.

Part i. of vol. xxvii. of the Transactions of the South African Philosophical Society is devoted to the description by Mr. R. Bergh, of Copenhagen, of a collection of South African opisthobranchiate molluscs. Hitherto the known South African representatives of this group have been very few, but Mr. Bergh has been able to describe quite a number of new species, many referable to the genus Aplysia. Owing largely to the influence of currents, there is a marked difference between the marine faunas of the west and east sides of the Cape Peninsula, the latter having a more tropical Indian character. Still, however, typical forms of nudibranchs do occur on the west side. The collection is due to the energy of Dr. Gilchrist, after whom one of the species of Aplysia is named.

We have received copies of three papers dealing with injurious insects recently issued by the U.S. Department of Agriculture. In the first of these, forming Farmers' Bulletin No. 275, Mr. L. O. Howard discusses the gipsy-moth (*Porthetria dispar*) and the means by which it can best be kept under control. This moth, we may remind our readers, is a European species, accidentally introduced into Massachusetts some forty years ago, since which date it has spread to Rhode Island, and parts of New Hampshire, Connecticut, and Maine. For a long time Massachusetts was left to fight the battle against the invader alone, but the Federal Government has at length recognised its duty of contributing to the expenses of the campaign. Of the other two papers, forming parts i. and vi. of Bulletin No. 63 of the Bureau of Entomology, one is devoted to the hibernation and development of the cotton-boll weevil, and the other to its ally, the strawberry weevil. It has been stated that the best method of destroying the first-named species is by burning or grazing off the cotton stalks in early autumn, so as to reduce by starvation the numbers which hibernate. As a large percentage die during hibernation, this plan is obviously much more efficacious than are attempts at destruction in spring. The strawberry weevil in 1905 inflicted damage on crops in Texas averaging about 12·5 per cent.

Of all the statistical reports annually published in the volume on the mineral resources of the United States, issued by the U.S. Geological Survey, none is of greater interest than that dealing with the production of precious stones; and the report for 1905, an advance copy of which we have received from the author, Dr. George F. Kunz, well maintains the high standard set by preceding reports. It deals not only with the production of precious stones in the United States, but also with the occurrence and production of precious stones in other parts of the world. In the United States the year 1905 was a memorable one, as it marked a record for the importation of precious stones of every variety. The value of diamonds and other precious stones amounted to little short of 7,000,000*l*., while the value of the production of precious stones in the United States was 65,250*l*. The discovery of utahlite, a green variscite (aluminium phosphate), a translucent green stone used as a gem, at a new locality, forty miles south-west of Salt Lake City, promises to furnish a quantity of this peculiarly American stone that may be used in semi-barbaric jewellery. In the mining of tourmaline, beryl, topaz, kunzite, and other stones peculiar to the southern counties of California, some wonderful crystals of rose-coloured beryl implanted on felspar and many fine crystals of red and green tourmaline are found, and in connection with them occur many specimens of great mineralogical interest. The region bids fair to excel that of the Ural, which for more than half a century has led the world in such products. A novel departure has been the cutting of the chrysoprase found at Visalia, California, in its brown matrix, which forms a pleasing contrast to the green colour of the gem. The emerald is still the stone most prized, and at no time has it received so high appreciation in price. Within the last two years there has been immense improvement in lapidary work in the United States in every variety of stone. There has been especial preference for many of the larger stones, and never before have aquamarines, tourmalines, and amethysts been sold in such profusion.

In the *Bulletin de la Classe des Sciences* (Brussels) M. P. De Heen publishes a photograph, taken in the Place Saint Lambert during a thunderstorm, showing remarkable luminous effects emanating from each of the electric arc lamps at the instant of a flash of lightning. These effects consist partly of bands of light passing from the lamps to the ground, which the author thinks may be caused by conduction currents, but in addition they include two luminous filaments emanating from each lamp, one forming a closed curve and the other curling round at its extremity in the form of a lasso. M. De Heen expresses the opinion that these effects have their seat in the ether, and cannot be accounted for by any corpuscular (or electron) theory of electricity; but whatever may be said on this point, the discharges in question appear to be well worth careful study.

In the *British Journal of Photography* for February 15 there is an article entitled "British Plates in Germany," in which the writer refers to the great outcry against the increasing imports of English plates into Germany. The reader will gather some idea of this great invasion of British-made plates from the following statistics (in kilos.) which are given:—

1903	1904	1905	1906
9600	23,300	38,700	83,000

The above figures show that, as the writer states, "in open markets the British dry plate has held its own against all comers, and has now shown its capability of disturbing the ranks of manufacturers in a country where home production is favoured and foreign competition handicapped by a tariff." The tremendous increase from the year 1905 to 1906 has been referred to in a German photographic journal as "gefahrvoll für die deutsche Industrie," and German plate makers are now taking a serious view of the situation. The writer tells us that the cry is raised of German-made glass for the German plate maker, because at the present time the latter has to import his glass from Belgium or Great Britain, and "to pay on it pretty nearly as much duty as is paid by the importer of the English plates." A practical illustration of the situation is summed up by the writer, who narrates that when paying a visit to a large German polytechnic, in the instruction rooms he found students being shown the making of positive transparencies on "Thomas's" plates, and of carbon prints on "Autotype" tissue.

The recent public inquiry at Dunfermline with reference to the death of a miner by an electric shock caused by a haulage rope being made alive, directs attention to the very unsatisfactory state of affairs which still exists in a large proportion of our collieries. It is lamentable that the present calamity and many previous cases were due to the fact that men who have not been technically trained in electrical work are placed in charge of electrical machinery, and although they may be quite practical engineers from mining and ordinary machinery points of view, are not fitted to examine and overhaul electrical plant. The question arises as to what constitutes a "competent person" within the meaning of the Mines Act (Rule 11), and the sooner this is made quite clear and insisted upon the better it will be for all concerned in electrical mining work. In the present case, the engineer of the colliery and the "overman" were entrusted with the machinery in question, and the evidence proves clearly that they were only expected to see that outside and surface connections were all right, and also to open up switch boxes, but any internal faults and so on were not considered to be within their responsibility. Colliery managers must be made to realise that technically trained men should be employed to undertake electrical work in the colliery, and until they do so accidents are bound to occur—the only wonder being that they are not more frequent.

Prof. R. W. Wood has sent us a description of a series of interesting experiments he has made in the direction of the optical intensification of paintings. One of the difficulties an artist has to contend with in depicting scenes in which great contrasts of luminosity occur is the narrow range of luminosity obtainable on canvas with pigments. Aubert states that the whitest paper is but fifty-seven times as luminous as the blackest, and this probably represents about the range obtainable in paintings. The problem is, therefore, how to produce a strong illumination on all high lights of the picture and a feeble illumination on all the shadows. Prof. Wood has obtained good results by taking a photograph of the painting on an orthochromatic plate, preferably a red sensitive plate with a suitable ray filter. A lantern-slide is then made from the negative, and the picture projected in a dark room, not on a white screen, but on the original painting. Any desired effect can be secured by local reduction or intensification of the negative or lantern-slide. If the negative itself is projected upon the painting a most curious effect is obtained. The contrast is lessened, and if the negative is a dense one the contrast may be almost destroyed, making the painting appear a flat wash of chocolate. In taking the negative, care must be taken to have the painting vertical and the camera lens directly in front of the centre of the picture. If after looking for a few minutes at a painting illuminated in the way described the lantern-slide is removed and a uniform illumination allowed to fall on the picture, it appears as if it had not been dusted for ten years; the sunlight leaves it, and everything looks flat. Prof. Wood finds that the effects are very different according to whether the negative is taken on an ordinary or an orthochromatic plate, especially if there is much blue in the painting. He thinks, too, that if the values are correct in the original painting, they will hold under the graded illumination produced by the lantern-slide; if they are not right, the errors will be glaringly magnified.

No. 95 of the Communications from the Physical Laboratory of the University of Leyden contains an account of a series of investigations on the measurement of very low temperatures carried out under the superintendence of Dr. Kamerlingh Onnes, the director of the laboratory. Mr. C. A. Crommelin has compared the readings obtained by a thermoelement of constantin-steel with those given by the hydrogen thermometer. Mr. J. Clay has measured the coefficient of expansion of Jena glass and of platinum between +16° C. and −182° C., and compared the platinum resistance thermometer with the hydrogen and the gold resistance thermometer, whilst M. C. Braak has made a detailed investigation of the hydrogen thermometer as a means of measuring low temperatures.

The transformation, which was first observed by Lallemand in 1870, of orthorhombic sulphur, dissolved in carbon disulphide, into a less soluble amorphous variety under the influence of light, forms the subject of a paper by Mr. G. A. Rankin in the *Journal of Physical Chemistry* (vol. xi., No. 1). The transformation is brought about by the violet and ultra-violet rays, and is reversible, the conversion of the amorphous form into the orthorhombic crystalline variety taking place when it is kept in darkness. The presence of ammonia or hydrogen sulphide accelerates the latter change and tends to prevent precipitation from a carbon disulphide solution even in bright sunlight. Conditions of equilibrium depending on the intensity of the light can be established between the two forms of sulphur present in solution at a constant temperature.

A second edition of Mr. Mervyn O'Gorman's "Motor Pocket Book" has been published by Messrs. A. Constable and Co., Ltd. The book has been revised and enlarged, and its price is 7*s.* 6*d.* net.

The writer of the article on the "Treatment of Cancer" in Nature of December 20, 1906, writes to say that he was in error in believing that the injections of the pancreatic enzymes have to be made in the neighbourhood of the growth (January 10, p. 247). He understands that this is not the case, so an objection he raised to the trypsin treatment is removed.

OUR ASTRONOMICAL COLUMN.

Astronomical Occurrences in March:—

March 1. 11h. 42m. Minimum of Algol (β Persei).
,, 14h. Mercury at greatest elongation, 18° 9′ E.
4. 8h. 31m. Minimum of Algol (β Persei).
6. 22h. 26m. Conjunction of Mars with the moon, Mars 3° 13′ S.
12. Venus. Illuminated portion of disc = 0·639.
16. 3h. Conjunction of Vesta with the moon, Vesta, 0° 7′ N.
21. 6h. Sun enters Aries, Spring commences.
,, 7h. 16m. to 8h. 30m. Moon occults χ^1 Orionis, (mag. 4·7).
,, 12h. 30m. to 13h. 25m. Moon occults χ^4 Orionis, mag. 4·8).
,, 16h. 38m. Conjunction of Jupiter with the moon, Jupiter 2° 32′ N.
24. 10h. 14m. Minimum of Algol (β Persei).
27. 7h. 3m. Minimum of Algol (β Persei).

A New Form of Cœlostat Telescope.—One of the chief difficulties encountered in the work of the Mount Wilson Solar Observatory has been the deformation and poor definition of the sun's image, caused by the distortion of the mirrors and by the unsteadiness of the heated atmosphere through which the horizontally projected beams have to pass when reflected from the cœlostat to the spectroheliograph or spectrograph.

Prof. Hale now proposes to obviate some of the difficulties by having the whole instrument vertical, and in No. 1, vol. xxv. (January), of the *Astrophysical Journal* he describes and illustrates the form of the proposed instrument. The cœlostat mirror (diameter 17 inches) is to be mounted on a steel tower some 60 feet high in such a manner that it can be moved to follow the sun without disturbing its adjustments. A second mirror, elliptical in form, will again reflect the beam on to a 12-inch object-glass (60 feet focal length) mounted directly below it, and